

A scenic park landscape featuring a calm pond in the foreground, surrounded by lush green trees and grass. In the background, a forested hill rises under a clear blue sky. Several people are visible: two standing near a green bench on the left, and a group of four people on the right bank of the pond. A green lamppost stands near the center. The overall atmosphere is peaceful and natural.

knox

your city

Draft

Climate response plan Consultation summary

Introduction



Knox is being affected by the impacts of climate change. As a community, we need to take action to reduce our impact on the environment and to prepare for the impacts of a changing climate.

Many residents have begun to reduce their impact on the environment and Council has worked to reduce its emissions – but we'll be much more effective if we come up with a plan and work together.

Knox City Council is committed to managing our impact and response to Climate Change, and have developed this Draft Climate Response Plan 2021-2031. This plan sets out our targets and provides a roadmap with measurable actions on how this will be achieved in partnership with the Knox community.

This plan is a draft for public consultation. During the consultation period 17 May – 27 June 2021, we will engage our community extensively to hear your ideas on how we can tackle climate change together, and gather your feedback on the priorities and actions we are proposing. We are keen to hear from you, this is a partnership and we all have an important role to preserve the health of our community.

For further information about the consultation program please visit haveyoursay.knox.vic.gov.au/climate



Understanding the effects of climate change



Climate change is one of the biggest threats to the future of our community and country. We are starting to see some of its effects and will continue to see an increase in warmer and drier conditions, which will have negative consequences for health, infrastructure, agriculture, water and biodiversity. This is due to increased frequency and intensity of heatwaves, and storms.

Atmospheric carbon dioxide concentrations have risen from around 280 parts per million at the start of the industrial revolution, to above 400 parts per million today. The increasing concentration of carbon dioxide, along with other greenhouse gases, are trapping heat in the Earth's atmosphere and warming the planet as a result of the enhanced greenhouse effect

To date, the following key measures have been undertaken by Council to lower our emissions profile:

- Since 2016, Council has replaced 10,600 streetlights to LED to reduce energy use by more than 75%
- The Sustainability Initiatives Capital Works program has seen a number of buildings reduce emissions due to energy efficiency upgrades and Solar PV installations. These initiatives has reduced Council's emissions by 27% since 2015/16.

- Introduced three electric cars to Council's fleet in 2019, to reduce fuel emissions. In addition two public electric car charging stations were installed in the Knox Civic Centre carpark.
- Provided sustainability programs for residents to lower community emissions. Programs include Australian Energy Foundation advice program, Solar Savers, Compost Community, National Tree Day, National Ride2Work Day, and National Walk Safely to School Day.
- Helped businesses become more sustainable by providing programs such as Australian Energy Foundation advice program, Environmental Upgrade Finance, and ASPIRE recycling program.

About Knox Climate Response Plan

The Draft Climate Response Plan sets out a pathway to a net zero emissions Knox City Council by 2030 and sets interim targets to ensure we reach this end goal.

It outlines:

- how Knox will adapt and improve its resilience to the climate hazards that impact the city now and in future climate scenarios;
- the social, environmental and economic benefits expected from implementing the Plan in line with the United Nations Sustainable Development Goals; and
- Council's governance, powers, and the partners who need to be engaged in order to accelerate the delivery of Knox's mitigation targets and resilience goals.

Proposed climate change targets



Council's targets are aligned to the Paris Climate Agreement, a global effort to limit the warming to below a 2°C increase (an increase of less than 2°C is below pre-industrial levels), but make efforts to contain the temperature increase to 1.5°C.

A net zero Knox City Council means:

- Net zero greenhouse gas (GHG) emissions from fuel use in buildings;
- Net zero GHG emissions from use of grid-supplied energy; and
- Wherever possible, net zero GHG emissions related to indirect emissions.



A net zero Knox community

Reducing emissions is a shared responsibility between governments, business and the community. Council's role as a community leader will support and help drive emissions reduction in our municipality.



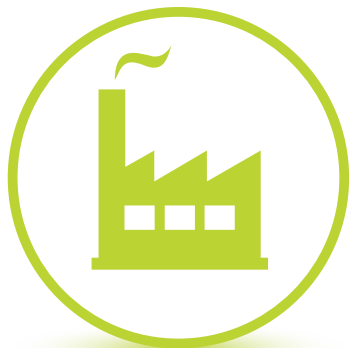
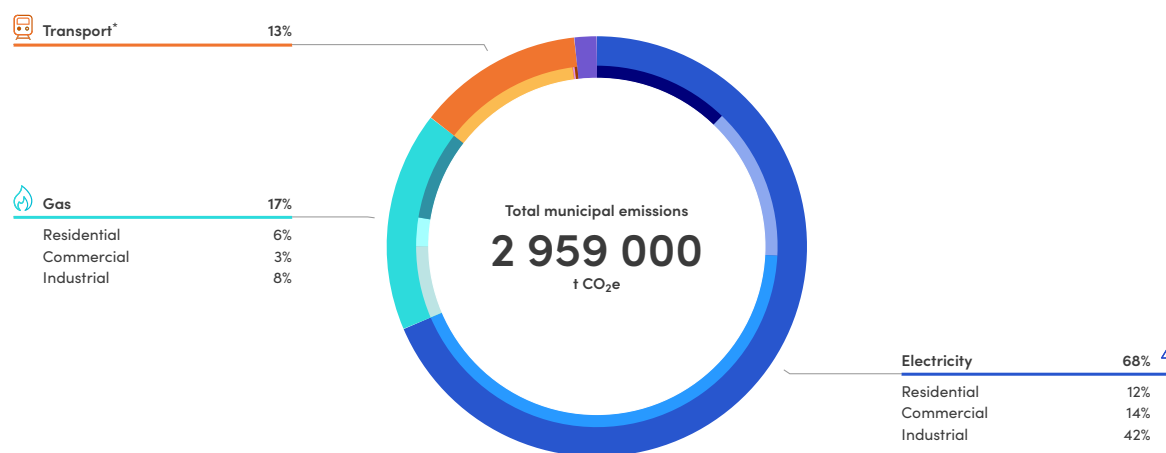
Note: A net zero emissions target by 2050 has been adopted by every state and territory government in Australia.

Knox community emissions profile



The 'Snapshot Community Climate Tool' has been developed by Ironbark Sustainability and Beyond Zero Emissions, and provides a national database of community emissions for all local governments in Australia. This tool has been used to obtain data on Knox community emissions for 2019.

The industrial sector is the largest contributor to emissions in Knox, accounting for 50% of total emissions. It is largely comprised of small to medium sized manufacturing businesses, with some larger businesses.



INDUSTRIAL SECTOR
accounts for
50%
of total emissions



HOUSEHOLDS
accounts for
18%
of total emissions



KNOX COUNCIL
accounts for
<1%
of total emissions

Council's emission profile



Council's corporate carbon emissions are National Greenhouse and Energy Reporting System. This framework categorises the emissions as follows:

- **Scope 1:** Emissions from a facility or site under the direct control of the Council (examples include emissions from mains gas and fuel used in Council's Fleet);
- **Scope 2:** Indirect emissions created off-site for facilities under the direct control of the Council, mainly from metered electricity purchased for Council's facilities; and
- **Scope 3:** Emissions from off-site facilities or activities, not under operational control of Council (e.g. unmetered electricity such as

street lights, waste from Council operations, staff travel for work purposes, emissions from contractor vehicles, and emissions from leased buildings).

Our response to climate change

Climate change is a complex issue and requires a proactive and multifaceted approach from Council and the community, including residents, businesses and community groups to make real change. Mitigating the effects of climate change requires setting clear targets to direct efforts towards achieving these targets, monitor and evaluate the effectiveness of programs, and to place accountability on Council and our Knox community.



ELECTRICITY
accounts for
80%
of total emissions



GAS
accounts for
12%
of total emissions



FLEET
accounts for
<9%
of total emissions



Protecting community health and resilience

Supporting the health and well-being of vulnerable members of the community is a strategic priority for Knox Council. This includes older people and people living with a disability. Noting the potential impacts of climate change, specifically increased frequency of heatwaves and storms, may exacerbate existing health sensitivities, accommodation stress, and isolation.

We plan to do this by:

- Undertaking upfront planning and defining responsibilities to better coordinate service providers involved in delivering assistance to older persons during emergency events;
- Identifying areas where urban heat islands intersect with vulnerable populations;
- Undertaking a prioritisation process for investment in urban cooling measures; and
- Developing a register of vulnerable persons based on areas of urban heat islands.





The City of Knox is bounded by the Dandenong Ranges National Park to the east, by Churchill National Park and Lysterfield National Park to the south, and by the Dandenong Creek Valley Parklands to the west, however, the natural environment within the municipality is extremely fragmented due to both residential and commercial development.

Knox managed bushland reserves are an important part of the remaining network of natural habitat and provide important food and shelter for a wide variety of wildlife, including many bird species, bats, frogs, reptiles, and insects. There are over 40 threatened species within the municipality, and extreme weather events have the potential to lead to local extinctions.

Some of the impacts of climate events on biodiversity include:

- direct fauna casualties
- habitat loss
- reduced 'functional biodiversity' (ability for fauna to move for food, breeding and protection)
- reduced long-term survival and resilience of species
- new diseases.

Given the large degree of fragmentation, it is essential for us all to work collaboratively. This means Council, community groups, residents, state, and national parks agencies working together to ensure:

- A consistent approach to the management of pest plants and animals; and
- Continuous improvement of the quality and connectedness of natural environments within the municipality.





Adapt and preserve our natural environment

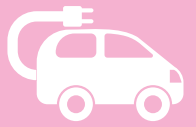
A key area of action is to protect and buffer the current areas of high biodiversity value and the natural environment from the effects of climate change, whilst enhancing the natural environment.

The design of streetscapes including the planting of street trees, inclusion of water sensitive urban design assets, vegetation and grassed areas can help to reduce urban temperatures and provide biodiversity and habitat benefit.



We plan to do this by:

- Investigating the preparation and inclusion of additional planning provisions to minimise development from occurring in high bushfire risk areas;
- Developing a fire management plan that allows for vegetation to adapt to future changes in climate patterns;
- Developing street tree plantings for maximum urban heat island mitigation;
- Obtaining advice on liability issues relating to tree maintenance and pest management due to climate impacts;
- Developing an Urban Forest Strategy;
- Establishing more climate resilient plant species in Council plantings;
- Improving Council wide tree planting diversity that incorporates both native species for biodiversity benefits and introduced species for improved cooling benefits;
- Developing a lower impact approach to vegetation management through collaborating with power network managers;
- Revising streetscape models to minimise damage to existing infrastructure assets resulting from poor street tree selection; and
- Investigating the preparation and inclusion of additional planning provisions that can retain tree canopy cover, and encourage or increase additional tree canopy cover.



On-road transport is a significant source of emissions in the City of Knox contributing approximately 13% to the municipal profile. A mode shift towards alternative forms of transport is the most important part of reducing car travel and lowering emissions from transport.

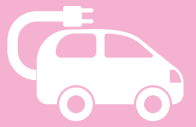
Expanding the electric vehicle charging network

Electric vehicles (EVs), even when charged through the electricity grid, is a lower emissions alternative than a petrol or diesel vehicle. To support our community transitioning to EVs, this initiative seeks to expand the network of rapid charge stations across Knox.

We plan to do this by:

- Identifying and setting aside land available for Electric Vehicle (EV) charging points, including select parking spaces, and by requiring EV charging points in new developments in certain zones; and
- Working with stakeholders to remove barriers to the uptake of EVs





Changing the future of transport

This program involves supporting a car sharing program in Knox. Introducing a new mode of public transport, will increase travel convenience, provide more travel options for our community, and potentially reduce car-ownership in Knox.

We plan to do this by:

- Developing a policy that promotes car share programs. This policy can focus on provision of dedicated parking for car share vehicles and the positive impacts of car sharing; and
- Facilitating the establishment of practical and easily available car and bike share schemes which are mutually beneficial to the service providers and residents.



Expansion of Council's electric vehicle fleet

Currently, transport fuels are responsible for nine percent of Knox City Council's corporate emissions and this is expected to increase over time. Council's Sustainable Fleet Policy will establish a framework to guide Council staff when purchasing new vehicles and designing fleet infrastructure such as parking bays and recharging stations. This will ensure that Council's investments in fleet and fleet infrastructure that are future proofed for the EV transition.

We plan to do this by:

- Developing a Sustainable Fleet Policy including driver training
- Replace all passenger pool cars with EV by 2025
- Install EV charging stations
- Replace other vehicles with fuel efficient alternatives
- Install telematics



In the Knox municipality, 37% of emissions come from residential and commercial stationary energy, which largely refers to the use of electricity.

Low emissions building through design

This program aims to address the energy efficiency of buildings as they are being designed and built. The outcome would be buildings that are well insulated, well oriented, more comfortable and resilient to increasing temperature and designed for low-energy use.

We plan to do this by:

- Working with developers to ensure that the highest standard of environmentally sustainable design (ESD) is implemented. Beyond this, Council will work on developing updated planning provisions and advocate for their inclusion in the Knox Planning Scheme by the State Government.
- Investigating incentives for developers to encourage them to design high-performing buildings.

Increase energy efficiency in council buildings

Knox Council adopted an Energy Performance Contract (EPC) in 2019 in order to reduce energy use across larger Council facilities. With \$1.85 million invested into energy efficiency upgrades at Knox Leisureworks, Rowville Community Centre, Ferntree Community Arts Centre and Library, Knox Community Arts Centre, and Knox Regional Netball Centre, Council can expect to see emissions reduced by approximately 45% or 1,226 tCO₂e. The energy efficiency upgrades include LED lighting, solar panels, building management systems and upgrades to cooling/heating systems.

Council will continue to implement energy efficiency upgrades at facilities consuming the highest energy, initiatives include installing solar photovoltaics (PV), lighting upgrades and gap sealing.

We plan to do this by:

- Implementation of a Sustainable Design and Infrastructure Policy;
- Implementation of Knox City Council Energy Performance Contract;
- Undertaking energy efficiency opportunities for Council buildings; and
- Installing solar PV across remaining viable sites.

Efficient buildings and infrastructure



Change public lighting to LED

Knox Council has already undertaken a bulk changeover of around 10,600 residential lights to LED, reducing energy use by over 75% and resulting in significant savings to operating and maintenance costs and greenhouse gas emissions.

We plan to do this by:

- Replacing approximately 3,300 lights to LED on major roads and intersections; and
- Powering streetlights with wind energy via a Power Purchasing Agreement.



Sustainable roads

Council constructs, specifies, and fixes many kilometres of road each year. This program will lower emissions by using sustainable materials for the construction and maintenance of roads and footpaths, and changing construction processes. In addition, Council will update our infrastructure specifications to incorporate the Department of Transport specifications.





Adapt and protect our buildings

Ensuring the continued operation of council facilities, the quality and effectiveness of associated services and the safety of users is of paramount importance to Council. The increased frequency and intensity of extreme weather events, including floods, bushfires, and storms, may lead to increased maintenance or operational requirements and costs.

We plan to do this by:

- Engaging with the facility operators (Council and third party) to establish safe operating levels for facilities that are at risk of being impacted by climate stressors;
- Incorporating climate variables and future climate risk into building condition assessments to ensure that climate stressors, such as storms, bushfires, floods and heatwaves are considered;
- Developing a site-specific strategy for the ongoing provision of sporting facilities during extreme droughts;
- Ensuring future planning and design criterion that critical facilities and emergency services are located in accessible and resilient locations; and
- Reviewing and updating climate hazard mapping to ensure that planning decisions account for areas of future and current risk.

Climate Resilient Infrastructure

Our community relies on the continued provision of public infrastructure. The safety of the people who use this infrastructure is the highest priority of Council. Adapting to increased pressure on this infrastructure due to climate change, means that care needs to be taken now in preparing for future impacts.

We plan to do this by:

- Seeking legal advice on the liability associated with climatic events that have the potential to impact users of Council infrastructure;
- Engaging with public sector service providers, such as water authorities, to signal the importance of being prepared for future climate risks, learn from their practices, identify potential points of intersection with Council services and areas where collaboration might be mutually beneficial;
- Developing detailed financial impact analysis studies in order to access future external capital to support risk mitigation works linked to climate change; and
- Identifying infrastructure that may be required as a retreat, as a long-term adaptation measure due to flood or fire risk.



Council currently participates in the Solar Savers program, which supports residents of Knox to install rooftop solar by providing advice and streamlining decision making about products and services.

Solar for rentals

In addition to current programs, Council will support and facilitate solar installation for rental properties, a largely untapped market. Rental properties in Knox make up approximately 16.9% of the housing tenure (.idCommunity, 2020). This program is focused on facilitating a program that addresses split incentives for landlords and renters.

We plan to do this by:

- Working with solar installation companies and real estate agents to devise schemes that provide financial mechanisms for landlords to install solar on rental properties.

Landfill solar farm

The preliminary findings of a recent feasibility study show that that Knox has a suitable site for a 4.99MW solar farm. If constructed, this solar farm would generate energy equivalent to 2.5 times Council's energy demand.

We plan to do this by:

- Investigating enterprise models and detailed business case for the funding, construction and operation of a solar farm.





The industrial sector accounts for 50% of the total emissions in Knox. This sector is largely comprised of small to medium sized manufacturing businesses, with some larger businesses also present.

Transition to a zero carbon economy

Council will support businesses and industry to achieve emissions reductions through energy efficient technology, degasification and renewable energy. This support will be delivered through working groups with businesses and key industry bodies and research bodies.

This program consists of 3 key areas:

- Transitioning towards more energy efficient technology: This includes simple changes, such as transitioning lighting at industrial sites away from high-pressure sodium and metal halide to LEDs, and more complex changes such as air compressor systems, refrigeration systems and other industrial equipment.
- Transitioning away from gas as an energy source: Replace gas-powered machinery with viable clean energy alternatives e.g. renewable electricity, electromagnetic technology, bioenergy, solar thermal, geothermal and hydrogen.
- Sourcing all electricity from renewable sources: Including onsite solar PV systems and purchased grid renewables. In Knox, numerous businesses operate out of large warehouses, many with an ideal amount of roof space that could be used for renewable energy capture.

We plan to do this by:

- Implementing working groups to focus on a specific set of interventions including alternative technologies, Power Purchase Agreements (PPAs), energy efficiency and degasification; and
- Deliver workshops on renewable energy Power Purchase Agreements (PPAs) for industrial organisations with large electricity demand.



Monitoring, evaluation, review and learning



Monitoring, evaluation, review and learning (MERL) will be implemented to track our progress in achieving our targets, and measure effectiveness of programs. This analysis will allow Council to optimise programs and redirect the course if necessary. This not only allows Council to address the risk associated with program failures, it provides confidence that resources are being used effectively to achieve the planned outcome. Without undertaking MERL activities, inefficiencies or misdirection may not be realised until the end of the program or project, if at all.





These Guiding Principles helped Council to draft actions to minimise climate impacts, build a resilient community, and protect the ecosystems that sustain us. These principles helped Council address the important social, economic, and environmental challenges and develop the solutions that are required in order to meet the climate challenge.

The actions highlighted throughout this document are intended to be:

- Ambitious: Set goals and implement actions that evolve towards an ambitious vision.
- Inclusive: Involve community, business and other stakeholders in finding solutions.
- Fair: Seek solutions that equitably address the risks of climate change and share the costs and benefits of action across the community.
- Relevant: Deliver local benefits and support local development priorities.
- Actionable: Propose cost-effective actions that are realistic.
- Evidence-based: Reflect best practice scientific knowledge and local understanding.
- Transparent and verifiable: Set goals that can be measured, reported and evaluated.





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 Interpreter
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National Relay Service
133 677



Knox City Council acknowledges the traditional custodians of the city of Knox, the Wurundjeri and Bunurong people of the Kulin Nation.